

# Table of Contents

## INVITED PAPERS BY TOPIC

<b>I.</b>	<b>THE INTERACTION OF STATISTICS AND POLICY: SOME EARLY RESULTS FROM THE 1990 CENSUS COVERAGE EVALUATIONS</b>	
	<b>Chair/Organizer:</b> JOHN H. THOMPSON, U.S. Bureau of the Census	
	The 1990 Post-Enumeration Survey: Operations and Results. HOWARD HOGAN, U.S. Bureau of the Census	1
	Estimating Coverage of the 1990 United States Census: Demographic Analysis. J. GREGORY ROBINSON, BASHIR AHMED, PRITHWIS DAS GUPTA, KAREN A. WOODROW, U.S. Bureau of the Census	11
	1990 Post-Enumeration Survey Evaluation Results. DAVID BATEMAN, JON CLARK, MARY MULRY and JOHN THOMPSON, U.S. Bureau of the Census	21
<b>II.</b>	<b>MEASURING POVERTY—OFFICIAL UPDATED, SUBJECTIVE, AND MATERIAL HARDSHIP MEASURES: WHERE DO WE GO FROM HERE?</b>	
	<b>Chair/Organizer:</b> BRUCE W., KLEIN, U.S. Department of Agriculture	
	Discussion. BRUCE W. KLEIN, U.S. Department of Agriculture	31
	Discussion. HAROLD W. WATTS, Columbia University	33
	Issues in the Measurement of Poverty. PATRICIA RUGGLES, The Urban Institute	36
	Discussion. DENTON R. VAUGHAN, Social Security Administration	44
	Political Dimensions of Poverty Measurement Issues. JOHN C. WEICHER, U.S. Department of Housing and Urban Development	47
<b>III.</b>	<b>THE ROLE OF MICROSIMULATION MODELS IN ANALYZING SOCIAL WELFARE PROGRAMS</b>	
	<b>Organizer:</b> CONSTANCE F. CITRO, National Research Council	
	The Report of the National Research Council Panel to Evaluate Microsimulation Models for Social Welfare Programs. ROBERT MOFFITT, Brown University; ERIC HANUSHEK, University of Rochester; CONSTANCE F. CITRO, National Research Council	57
	Discussion. MARTIN DAVID, University of Wisconsin, Madison	67
	Discussion. NANCY M. GORDON, Congressional Budget Office	72
	Discussion. DANIEL H. WEINBERG, U.S. Bureau of the Census	74

<b>IV.</b>	<b>HANDGUNS AND CRIME</b> <b>Organizer:</b> ELIZABETH A. STASNY, Ohio State University <b>Chair:</b> DIANE G. SAPHIRE, Trinity University	
	Victims of Handgun Crimes. MICHAEL R. RAND, U.S. Bureau of Justice Statistics	77
	Preventive Effects of Mandatory Sentencing Laws for Gun Crimes. DAVID McDOWALL, COLIN LOFTIN and BRIAN WIERSEMA, University of Maryland	87
<b>V.</b>	<b>WHAT HAVE WE LEARNED FROM EMPIRICAL APPLICATIONS OF SAMPLE SELECTION-BIAS MODELS?</b> <b>Organizer:</b> KENNETH C. LAND, Duke University <b>Chair:</b> CHARLES COWAN, Opinion Research Corporation	
	Assessing the 1980 Post Enumeration Program Through Selection Models. ROBERT E. FAY, U.S. Bureau of the Census	95
	An Assessment of the Consequences of Sample Censoring Bias in Graduate School Admission Test Validation. DANIEL A. RELLES, The RAND Corporation; ROSS M. STOLZENBERG, University of Chicago	101
<b>VI.</b>	<b>WHOM CAN YOU TRUST?—A Panel Discussion of the Tensions Between Data Use and Data Protection</b> <b>Organizer:</b> GERALD GATES, U.S. Bureau of the Census <b>Chair:</b> GEORGE T. DUNCAN, Carnegie Mellon University	
	Discussion. C. LOUIS KINCANNON, U.S. Bureau of the Census	111
	Discussion. F. THOMAS JUSTER, University of Michigan	114
	Data Confidentiality: A Researcher's Perspective. JAMES P. SMITH, The RAND Corporation	117
<b>VII.</b>	<b>PUBLIC POLICY AND STATISTICS: DEFINING AND MEASURING NATIONAL GOALS FOR EDUCATION</b> <b>Organizer:</b> CARROL B. KINDEL, National Center for Education Statistics <b>Chair:</b> EMERSON J. ELLIOTT, National Center for Education Statistics	
	Formulation of the National Goals. MARLIS MANN, University of New Mexico	120

## CONTRIBUTED PAPERS BY TOPIC

<b>I.</b>	<b>EXPLORATIONS IN LIFE TABLE AND MORTALITY ANALYSIS</b> <b>Chair:</b> STEVEN B. COHEN, AHCPR	
	A Comparison of Reported Age to Age Computed Using Date of Birth and Date of Death from the Death Certificate. KATHERINE B. OFFUTT, HARRY M. ROSENBERG, National Center for Health Statistics	133

An Alternative to the Life Table Model. PARAMESWARA KIRSHNAN, YAN JIN,  
University of Alberta, Edmonton, Canada 139

Infant Mortality in Relation to Indices of Maturity at Birth. HOWARD J. HOFFMAN, HUI QUAN,  
National Institutes of Health; JOSEPH W. STOCKBAUER, Missouri Department of Health;  
RAYMOND D. NASHOLD, Wisconsin Department of Health and Social Services;  
RUSSELL S. KIRBY, Arkansas Children's Hospital 146

Using Principal Components in Time Series Modeling and Forecasting of Age-Specific Mortality Rates.  
WILLIAM BELL, BRIAN MONSELL, U.S. Bureau of the Census 154

Weibull Regression With Unobservable Heterogeneity, An Application. J.R. FEAGANES,  
C.M. SUCHINDRAN, University of North Carolina 160

## II. RESEARCH ISSUES IN VA: PROJECTIONS AND SELECTED ASPECTS OF VA MEDICAL CARE

Organizer: ROBERT E. KLEIN, U.S. Department of Veterans Affairs

Chair: SUZANNE BIANCHI, U.S. Bureau of the Census

Trends in the Veteran Population Receiving VA Disability Compensation.  
ROBERT E. KLEIN, U.S. Department of Veterans Affairs 166

VA Hospitals Classified by Homogeneous Costs. DONNA AVERY DEFIORE,  
MICHAEL FITZMAURICE, NICOLE LAVELLEE, U.S. Department of Veterans Affairs 172

Utilization of VA Versus Non-VA Outpatient Care. NANCY J. PETERSEN, VA Medical Center 178

A Two Part Model for Estimating Demand for Outpatient Services. JAMES F. BURGESS, JR.,  
PAMELA HENDERSON, U.S. Department of Veterans Affairs 183

The VA Market Share of Medical Care Users. DONALD D. STOCKFORD,  
U.S. Department of Veterans Affairs 189

Discussion: R. CLIFTON BAILEY, Health Care Financing Administration 195

## III. NONRESPONSE: IMPUTATION AND WEIGHTING ADJUSTMENT STRATEGIES

Chair/Organizer: LARRY S. CORDER, Duke University

Exponential and Logistic Weight Adjustments for Sampling and Nonresponse Error Reduction.  
RALPH E. FOLSOM, Research Triangle Institute 197

Consideration of Health Variables to Adjust Sampling Weights for Nonresponse in a National  
Health Survey. TRENA EZZATI, MEENA KHARE, National Center for Health Statistics 203

The Effect of Two Methods for Allocating Missing Data on Variable-Specific Infant Mortality Rates  
from the National Linked Birth and Infant Death File. MARIAN F. MACDORMAN, KATE PRAGER,  
National Center for Health Statistics; SHELLY M. ENGER, and MARY LOU GUTIERREZ,  
University of California, Los Angeles 209

**IV. THE STUDY OF MORTALITY IN THE UNITED STATES AND WESTERN EUROPE**  
**Chair/Organizer:** ALBERTO PALLONI, University of Wisconsin

New Data on Socio-Economic Differential Mortality in the United States. HARRY M. ROSENBERG,  
 EVE POWELL-GRINER, National Center for Health Statistics 215

New Methods for the Analysis of Adult Mortality Differentials. ALBERTO PALLONI,  
 ROBERT D. MARE, University of Wisconsin 222

Black/White Infant Mortality Differentials in the United States: Towards More Theory-Based Research.  
 ARLINE T. GERONIMUS, JOHN BOUND, University of Michigan 228

**V. STUDIES IN THE SOCIAL WELL-BEING OF THE POPULATION**  
**Chair:** NANCY GORDON, Congressional Budget Office

Characteristics of Persons in the United States by Language Spoken: 1979 and 1989.  
 EDITH K. MCARTHUR, U.S. Department of Education 238

Microdynamics of Income Flows in Child-Rearing Households. HAROLD W. WATTS,  
 Columbia University; LINDA MOELLER, U.S. Bureau of the Census 244

Local Labor Markets and Local Area Effects on Welfare Duration: Evidence from SIPP.  
 JOHN FITZGERALD, ASA/NSF/Census Fellow & Bowdoin College; XUEJIN ZUO,  
 U.S. Bureau of the Census and Shanghai Academy of Social Science 250

Poverty and Prosperity: Trends in the Largest Metropolitan Areas in the 1980s. REYNOLDS FARLEY,  
 CHARLES PEEK, and SHELDON DANZIGER, University of Michigan 256

**VI. STUDENTS AND SCHOOLS AT RISK**  
**Organizer:** MARILYN M. MCMILLEN, National Center for Education Statistics  
**Chair:** PAUL PLANCHON, National Center for Education Statistics

The National Household Education Survey: A Look at Young Children at Risk. JERRY WEST,  
 National Center for Education Statistics, J. MICHAEL BRICK, Westat, Incorporated 262

Schools at Risk: Results of the 1988 Schools and Staffing Survey. MARY R. ROLLEFSON,  
 National Center for Education Statistics 268

Diversity of Asian American Students and its Implications for Education: A Study of the 1988  
 Eighth Graders. SAMUEL S. PENG, RALPH M. LEE, National Center for Education Statistics 274

**VII. MICROSIMULATION AND INCOME MAINTENANCE  
 PROGRAM PARTICIPATION**  
**Chair/Organizer:** PAT DOYLE, Mathematica Policy Research, Incorporated

Rationale for a SIPP-Based Microsimulation Model of SSI and OASDI. BERNARD WIXON,  
 DENTON R. VAUGHAN, Social Security Administration 280

Implementing an SSI Model Using the Survey of Income and Program Participation.  
 DENTON R. VAUGHAN, BERNARD WIXON, Social Security Administration 286

Issues in the Design of Participation Algorithms for Microsimulation Models. ALBERTO MARTINI, Mathematica Policy Research, Incorporated 292

Using Microsimulation to Assess the Impact of the 1985 Food Security Act on Food Stamp Program Participation Rates. CAROLE TRIPPE, PAT DOYLE, Mathematica Policy Research, Incorporated 298

Discussion. HAROLD W. WATTS, Columbia University 304

# **VIII. COMPUTER ASSISTED SURVEY INFORMATION COLLECTION: INTERNATIONAL PROGRESS**

**Organizer:** KARL K. KINDEL, U.S. Bureau of the Census

**Chair:** STANLEY D. MATCHETT, U.S. Bureau of the Census

Design and Management of Computer Assisted Interviews in the Netherlands. LON P.M.B. HOFMAN, WOUTER J. KELLER, Netherlands Central Bureau of Statistics 306

The Development and Implementation of Computer Assisted Interviewing for the British Labour Force Survey. TONY MANNERS, Office of Population Censuses and Surveys, London 312

Design and Development of Computer Assisted Survey Information Collection at the U.S. Census Bureau. KARL K. KINDEL, U.S. Bureau of the Census 317

Discussion. DEBORAH M. WINN, National Center for Health Statistics 323

# **IX. THE 1990 CENSUS: UNDERCOUNT ISSUES AND THE POST-ENUMERATION SURVEY**

**Organizer:** MARY MULRY, U.S. Bureau of the Census

**Chair:** PAULA SCHNEIDER, U.S. Bureau of the Census

Age-Period-Cohort Analysis of Census Undercount Rates for Race-Sex Groups, 1940-1980: Implications for the Method of Demographic Analysis. JEFFREY S. PASSEL, The Urban Institute 326

Modelling PES Adjustment Factors Using 1988 Dress Rehearsal Data. ELIZABETH T. HUANG, CARY T. ISAKI, and JULIE H. TSAY, U.S. Bureau of the Census 332

Smoothing Adjustment Factors From the 1990 Post Enumeration Survey. CARY T. ISAKI, ELIZABETH T. HUANG, and JULIE H. TSAY, U.S. Bureau of the Census 338

Using Information From Demographic Analysis in Post-Enumeration Survey (PES) Estimation—New Methods and Further Results. WILLIAM BELL, U.S. Bureau of the Census 344

Discussion. MICHAEL L. COHEN, University of Maryland 350

# **X. THE U.S. CENSUS IN HISTORICAL PERSPECTIVE: PRIVACY, PUBLIC-USE SAMPLES, AND DATA ANALYSIS**

**Chair/Organizer:** DAVID M. PEMBERTON, U.S. Bureau of the Census

The Social Construction and Uses of the 1880 U.S. Census. MIRIAM L. KING, DIANA DAVIS MAGNUSON, University of Minnesota 353



The U.S. Census and Community History. KENNETH J. WINKLE, University of Nebraska	359
Integration of the Public Use Samples of the U.S. Census. STEVEN RUGGLES, University of Minnesota	365
<b>XI. SOME RESULTS FROM THE AMERICAN HOUSING SURVEY: NATIONAL AND METRO</b>	
<b>Organizer:</b> LEONARD NORRY, U.S. Bureau of the Census	
<b>Chair:</b> DUANE MCGOUGH, U.S. Department of Housing and Urban Development	
Dynamics of the Low-Cost Rental Stock. MARGERY A. TURNER, JOHN G. EDWARDS, The Urban Institute	371
Measuring Changes in Affordable Low-Rent Housing With AHS Data. KATHRYN P. NELSON, JOSE M. CALZADILLA, U.S. Department of Housing and Urban Development	377
Discussion. KEITH R. IHLANFELDT, Georgia State University	383
<b>XII. THE 1990 CENSUS: OPERATIONAL PROBLEMS AND SOLUTIONS</b>	
<b>Organizer:</b> MICHAEL L. MERSCH, U.S. Bureau of the Census	
<b>Chair:</b> EDWARD T. PRYOR, JR., Statistics Canada	
Data Capture and Questionnaire Printing for the 1990 Decennial Census. JOHN S. ROTEGARD, ALAN J. BERLINGER, and PAUL R. FRIDAY, U.S. Bureau of the Census	385
Quality Program and Results of the Creation of the Short-Form Mailing Packages for the 1990 Decennial Census. SOMONICA L. GREEN, MICHAEL L. MERSCH, U.S. Bureau of the Census	389
The Role of the United States Postal Service During the 1990 Decennial Census. EMILDA B. RIVERS, AMY L. TILLMAN, U.S. Bureau of the Census	395
Programs to Improve Coverage in the Decennial Census: Enumeration of the Parolee and Probationer Population. SUSAN C. BEVERAGE, AMY L. TILLMAN and FAY F. NASH, U.S. Bureau of the Census	401
<b>XIII. ESTIMATES, PROJECTIONS AND PREDICTIONS OF SOCIAL AND DEMOGRAPHIC CHARACTERISTICS</b>	
<b>Chair:</b> J. GREGORY ROBINSON, U.S. Bureau of the Census	
Methodology for the Projection of the Educational Attainment of the U.S. Labor Force, 2000. HOWARD N. FULLERTON, JR., U.S. Bureau of Labor Statistics	407
Models of Ordered Categorical Data: Caveat Emptor. J.F. BUONCRISTIANI, Wheaton College; S.R. LIPSITZ, Harvard School of Public Health	413
Generational Population Projections for Ethnic Groups. BARRY EDMONSTON, JEFFREY PASSEL, The Urban Institute	419
Demographic Consequences of Guestworker Migration. PETER PFLAUMER, West Germany	425

<b>XIV.</b>	<b>TOPICS IN THE MODELING OF FERTILITY</b>	
	<b>Chair:</b> BRIAN C. MONSELL, U.S. Bureau of the Census	
	Family Size Distributions and Correlation Between the Numbers of Male and Female Offspring. H.L. SHARMA, University of Pennsylvania	431
	Covariates of Progression to Third Birth in Canada. K. VANINADHA RAO, K.S. MURTY, Bowling Green State University	435
	A Probability Distribution for Last Closed Birth Interval. K.K. SINGH, B.N. BHATTACHARYA, C.M. SUCHINDRAN, University of North Carolina	441
	Nonparametric Bivariate Survival Analysis Applied to Women's Age at First Marriage and Age at First Birth. SALLY FREELS, University of Illinois	447
	Time Series Analysis of Three Centuries of the Childbearing and Fertility Process in Finland. M. NABIL EL-KHORAZATY, Cairo University	452
	Discussion. KIRSTEN K. WEST, U.S. Bureau of the Census	458
<b>XV.</b>	<b>SURVEY DATA QUALITY: CONCEPTS, COLLECTION, AND MODE</b>	
	<b>Chair:</b> CHESTER E. BOWIE, U.S. Bureau of the Census	
	Receipt of Food Stamps by Longitudinal Households and Individuals in the SIPP. NANCY R. BURSTEIN, Abt Associates, Incorporated	460
	Reciprocity History and Left-Censored Spells of Program Participation in the SIPP. KATHLEEN SHORT, JUDITH EARGLE, U.S. Bureau of the Census	466
	Analysis of Survey Data on Nursing Home Patients by Mode of Data Collection. ESTHER HING, National Center for Health Statistics	472
	Discussion. DAVID R. JUDKINS, Westat, Incorporated	478
<b>XVI.</b>	<b>THE 1990 CENSUS: FIELD OPERATIONS AND LOGISTICS</b>	
	<b>Organizer:</b> RICHARD BITZER, U.S. Bureau of the Census	
	<b>Chair:</b> JAMES F. HOLMES, U.S. Bureau of the Census	
	Prelist Address File Creation for the 1990 Census. JOAN M. PAUSCHE, GEORGE A. SLEDGE, MICHAEL TENEBBAUM, U.S. Bureau of the Census	481
	Discussion—The 1990 Census: Field Operations and Logistics. RICHARD A. KULKA, National Opinion Research Center	487
<b>XVII.</b>	<b>TOPICAL ISSUES IN SOCIAL STATISTICS</b>	
	<b>Chair:</b> ALLEN L. SCHIRM, Mathematica Policy Research, Incorporated	
	Presidential Elections and Campaign Money: Statistical and Graphical Evidence. MACK C. SHELLEY, II, KATHLEEN D. SHELLEY, Iowa State University	490

Employment Equity for Mathematicians at Statistics Canada. CATHY COTTON,  
MARGOT SHIELDS, LARRY SWAIN, Statistics Canada 495

Estimation of Categorical Effects in a Salary Model. KATHERINE CAMPBELL,  
GERALYN M. HEMPHILL, MICHAEL D. McKAY, Los Alamos National Laboratory 501

**XVIII. PUBLIC PARTICIPATION IN THE 1990 DECENNIAL CENSUS**  
**Chair/Organizer: SUSAN M. MISKURA, U.S. Bureau of the Census**

Reaching Everyone: Encouraging Participation in the 1990 Census. NANCY BATES,  
DAVID C. WHITFORD, U.S. Bureau of the Census 507

Telephone Survey of Census Participation. TAMARA L. DINGBAUM, KATHRYN F. THOMAS,  
U.S. Bureau of the Census 513

1990 Census Mail Response: An Examination of Casual Relations at the County Level Using  
Regression Analysis. JAY K. KELLER, U.S. Bureau of the Census 519

Multiple Causes of Nonresponse: Analysis of the Survey of 1990 Census Participation.  
ROBERT E. FAY, U.S. Bureau of the Census; WOODY CARTER, KATHRYN DOWD,  
National Opinion Research Center 525

Discussion. DON A. DILLMAN, U.S. Bureau of the Census 531

**XIX. ADMINISTRATIVE HEALTH DATA: MEASURES AND ISSUES**  
**Chair: IRIS M. SHIMIZU, National Center for Health Statistics**

Trends in Hospital Utilization for Patients with HIV Diagnoses. LOLA JEAN KOZAK,  
MARY MOIEN, National Center for Health Statistics 534

Rising Health Care Costs and the Uninsured Baseline Data from the National Health Accounts and the  
Current Population Survey. KATHERINE LEVIT, SUZANNE LETSCH, HELEN LAZENBY, and  
CATHY COWAN, Health Care Financing Administration; GARY OLIN, Fu Associates, LTD 539

Display and Evaluation of Variant Hospitalization Patterns. RAYMOND G. HOFFMANN,  
MARK S. GOTTLIEB, and DAVID P. YAHNKE, The Medical College of Wisconsin 545

Towards a Better Use of Health Records for Statistical Purposes. R. LUSSIER, D.F. BRAY,  
Canadian Centre for Health Information 551

A Comparison of Multiple-Recapture Models for Drug Prevalence Estimation.  
MARY-LYNN BRECHT, THOMAS D. WICKENS, University of California 556

Estimates of Employer Contributions for Health Insurance. SHELDON E. HABER,  
The George Washington University 562

**XX. STATISTICAL ISSUES IN SOCIAL MEASUREMENT**  
**Chair: K.V. RAO, Bowling Green State University**

Metric Inference for Social Networks. DAVID BANKS, Carnegie Mellon University 568



A Longitudinal Random Effects Model with Covariates. DIANE G. SAPHIRE, Trinity University 574

Modeling Longitudinal Rates of Change in Prostate Specific Antigen During Aging. JAY D. PEARSON, PATRICIA KAMINSKI, E. JEFFREY METTER, JAMES L. FOZARD, and LARRY J. BRANT, National Institute on Aging; CHRISTOPHER H. MORRELL, Loyola College of Maryland; H. BALLENTINE CARTER, Johns Hopkins University 580

Validity of the Chi-Square Test in Dichotomous Variable Factor Analysis. MARK REISER, MARLA VANDENBERG, Arizona State University 586

Moments of a Comparative Statistic Used in Cluster Analysis. JANICE L. DUBIEN, Mississippi State University; WILLIAM D. WARDE, Oklahoma State University 592

Discussion. SUDHANVA V. CHAR, Clark Atlanta University 598

**XXI. MEASURING HEALTH AND DRUG ABUSE: DATA QUALITY AND ANALYSIS**  
Chair: CHARLES ROTHWELL, National Center for Health Statistics

Black-White Differentials in Health. PATRICIA M. GOLDEN, KENNETH W. HARRIS, National Center for Health Statistics 601

Measuring Health Practices of Older Adults: The Seniors' Lifestyle Inventory. PATRICIA M. SCHWIRIAN, The Ohio State University 607

Differential Drug-Use Patterns Between Institutionalized White and Black Male Delinquents in Georgia. KOMANDURI S. MURTY, CARLOTTA M. FREEMAN, Clark Atlanta University; K.V. RAO, Bowling Green State University 612

Drug Use of College Students on an ABCU Campus. KOMANDURI S. MURTY, Clark Atlanta University; BERNITA L. PATTERSON, University of Arkansas; KRISHNA SURYADEVARA, Clark Atlanta University 617

**INDEX OF PARTICIPANTS 623**